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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/600,049
Filing Date: June 20, 2003
Appellant(s): CHALIN ET AL.

MAILED

SEP 28 2007

GROUP 3600

Mr. Marlin R. Smith
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 26 June 2007 appealing from the Office action mailed 31 January 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2001/0027890	Bria et al	10/2001
5,788,263	VanDenberg	8/1998
3,756,646	Gimlett et al	9/1973
983,855	Aton	2/1911
2,370,773	Bradley	3/1945

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

Claims 30-31, 33, 36, 38, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Bria et al. In Figures 7, 8, and 8A, Bria et al shows a suspension system 150 including an axle assembly 149. The axle assembly 149 includes an axle 152, at least a portion of which can be made from a composite material (see paragraphs [0104] - [0106]). At least two beams (172a-b) are attached to the axle 152, wherein the beams (172a-b) pivot relative to a vehicle frame.

The axle 152 extends through each of the beams (172a-b). At least two metal sleeves 155 are secured exteriorly about the composite axle 152, and each of the

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beams (172a-b) is attached to a respective sleeve 155. The composite axle 152 extends through each of the sleeves 155. The sleeves 155 act as axle seats.

A spindle 154 is attached to the composite axle 152, and attached to a sleeve 153 that at least partially overlies the composite axle 152. The sleeve 153 includes an axle seat 153a. A portion of the composite axle 152 is received with the interior of the spindle 154. The spindle 154 may be bonded to the composite axle 152 (by being bonded to the sleeve 153, which is bonded to the axle 152. See paragraph [0103]).

The spindle 154 is configured to permit rotation of a wheel relative to the axle 152, namely allowing the wheel to rotate with the axle 152.

Claim Rejections - 35 USC § 103

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bria et al. Bria et al contains all of the limitations as set forth in paragraph 2 above, but does not specify that the spindle 154 is welded to the sleeve 153. As stated in lines 12-15 of paragraph [0103], Bria et al teaches that the spindle 154 may be bonded to the sleeve 153.

It is well known in the art that welding is a method of permanently bonding two or more elements together. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to weld the spindle to the sleeve, for the purpose of creating a permanent bond therebetween, thus preventing relative movement between the spindle and sleeve, which would reduce wear on the components.

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over VanDenberg in view of Gimlett et al. VanDenberg shows the use of an axle 19 attached to a suspension system. Namely, at least two beams 15 are attached to the axle 19 (thereby preventing rotation of the axle 19 relative to the beams 15) for pivoting displacement of the axle 19 relative to a vehicle frame 2. The axle 19 extends between and through each of the beams 15.

VanDenberg does not show at least a portion of the axle being made of a composite material. Gimlett et al teaches the use of a hollow axle 2, at least a portion of which is made from a composite material 3. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to form at least a portion of the axle of VanDenberg from a composite material for in order to reduce the weight of the axle (and therefore entire assembly) without sacrificing the strength, etc. characteristics of a solid steel axle.

Claims 13-21, 30-36, 38, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over VanDenberg in view of Gimlett et al as applied to claims 2-4 above, and further in view of Aton. VanDenberg as modified by Gimlett et al does not show at least two metal sleeves secured to the axle.

Aton teaches the use of an axle assembly including an axle 2 and a spindle 1 attached to the axle 2. The spindle 1 is attached to a sleeve 12 that at least partially overlies the axle 2. An axle portion 5 is received within an interior 4 of the spindle 1. While not shown, the axle 2 of Aton would include at least two metal sleeves 12 secured

exteriorly about the axle 2. Aton would also include two spindles 1 attached to the respective sleeves 12. The axle 2 extends through the sleeves 12 (namely, axle portion 5 extends through the sleeves 12). An axle portion 5 is received within an interior 4 of the spindle 1.

While not shown, the spindle 1 could be welded to the sleeve 12, in order to reduce the number of parts required to form the axle assembly, thus reducing assembly time. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the composite axle of VanDenberg as modified by Gimlett et al with the physical features (i.e. sleeve, spindle, etc.) of Aton in order to allow a plurality of different types and sizes of wheels to be used on the vehicle, while allowing replacement of the spindles in the event of damage to the spindles.

The sleeves 12 of Aton could be attached to a respective one of the beams 15 as shown in VanDenberg. As shown in VanDenberg, the portion of each beam end 18 that surrounds the axle 19 acts as a pair of axle seats. These axle seats would be interconnected between the sleeves 12 of Aton and the beams 15 of VanDenberg. Furthermore, the sleeves 12 of Aton would be bonded to the axle composite portion (such as in the manner set forth in column 5, line 61 through column 6, line 3 of VanDenberg) in order to prevent axial movement of the sleeves and/or axle during operation of the vehicle. The sleeves 12 of Aton could also be "welded" to the beams 15 of VanDenberg, by heat fusing the composite material of the beams 15 to the sleeve 12 of Aton, as a well-known alternative to adhesively bonding the two elements together, dependent upon cost and the exact type of connection required.

When given the configuration of Aton, the composite axle 2 (of Gimlett et al) would include a portion (5 as shown in Aton) that extends into each spindle 1. While not shown, one of ordinary skill in the art would find it obvious to bond the spindle 1 to the composite axle 2 (of Gimlett et al) in order to reduce the amount of relative rotation between the axle and spindle during operation, thus preventing failure of the assembly, increasing safety considerations, and reducing wear between the components.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over VanDenberg in view of Gimlett et al and Aton as applied to claims 13-21, 30-36, 38, 40, 44 above, and further in view of Bradley. VanDenberg as modified by Gimlett et al and Aton does not show the spindle including a brake mounting attached thereto.

Bradley teaches the use of a spindle 12 that includes a brake mounting 38 attached thereto. Therefore from this teaching, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a brake mounting on the spindles of VanDenberg as modified by Gimlett et al and Aton for the purpose of allowing a brake element and/or wheel to be mounted onto the spindle, as is well known in the art, thus providing a means to retard the rotation of a wheel mounted on the spindle.

(10) Response to Argument

Applicant's arguments filed 26 June 2007 have been fully considered but they are not persuasive. The Applicant argues that Bria et al does not show an axle assembly

that “permits relative rotation” between the wheels and axle. However, claim 30 only states that the spindle is “configured to permit rotation of a wheel relative to the axle”, which does not preclude a wheel that rotates with the axle. Therefore, Bria et al is still considered to meet the limitations of the claims.

The Applicant also argues that Bria does not describe a spindle in the manner described in the specification of the instant application. While it is true that Bria et al refers to element 154 as a “hub”, it is well known in the art that the terms “hub” and “spindle” refer to equivalent elements of an axle assembly that connect a wheel to the axle. Furthermore, no actual physical structure for the spindle has been set forth in the claims to distinguish the Applicant’s “spindle” from the “hub” of Bria et al.

The Applicant argues that Bria et al does not describe a spindle attached to a sleeve overlying a composite axle portion. However, these limitations have been clearly addressed in the rejection (i.e. Bria et al shows a “spindle” 153 attached to a sleeve 153, which overlies a portion of a composite axle) (see the 102 rejection above).

The Applicant further argues that Bria et al does not show the sleeve having an axle seat. The 102 rejection above clearly sets forth how Bria et al meets this limitation.

Regarding claim 32, the Applicant argues that Bria et al does not describe the spindle being welded to the sleeve. It is accurate to state that Bria et al does not describe a spindle welded to a sleeve. However, Bria et al does state in lines 12-15 of paragraph [0103], that the spindle 154 may be bonded to the sleeve 153. The Examiner then stated, “It is well known in the art that welding is a method of permanently bonding

two or more elements together. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to weld the spindle to the sleeve, for the purpose of creating a permanent bond therebetween, thus preventing relative movement between the spindle and sleeve, which would reduce wear on the components."

It should be noted that the Applicant has not argued that welding is not a well-known method of bonding two or more elements together (as stated by the Examiner) in the instant arguments; nor did the Applicant argue this fact in the response filed 16 November 2006, after the first occurrence of this rejection. Therefore, the Applicant has conceded that welding is a well-known bonding method as prior art.

Therefore, Bria et al meets the limitations of claim 32 for the reasons set forth in the above rejection.

Regarding the rejections under VanDenberg in view of Gimlett et al:

The Applicant's argument that the VanDenberg and Gimlett et al references teach directly away from one another is unpersuasive. The Gimlett reference teaches the use of a composite axle with at least a portion 3 of the axle made from a composite material. This axle 2 includes a hollow steel core 4 bonded with a composite material 3. Therefore, the axle of Gimlett would have a modulus of elasticity similar to that of the axle shown in VanDenberg, which would be significantly higher than the modulus of elasticity of the beam assemblies. One of ordinary skill in the art would have found it

obvious to provide the assembly of VanDenberg with the axle taught by Gimlett for the reasons set forth in the rejection above.

The Applicant further argues that neither reference discloses the manner in which the composite axle is attached to the beams. However, it should be noted that this attachment was fully described in the rejections set forth above.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the Applicant argues that VanDenberg and Gimlett et al show very different configurations, and that there is no teaching or suggestion in these references of how an axle assembly could be incorporated into a pivoting beam-type suspension system. The Applicant also argues that there is "not even the premise that the references could be combined (how would a rotating axle be attached to a pivoting beam?). It should be noted that Gimlett et al was used only to teach the structure of a composite axle, and was not literally combined with the VanDenberg reference.

First, it should be noted that the references were not literally combined. Gimlett et al was only used to teach an axle having a composite portion. Second, the court:

decision in *KSR International Co. v. Teleflex Inc* (550 U.S. ___, 82 USPQ2d 1385 (April 30, 2007)) has foreclosed the need of a teaching or suggestion being present within the references.

The rationale for modifying VanDenberg with Gimlett et al was a simple substitution of one known element for another to obtain predictable results. In this case, Gimlett et al taught that it would have been obvious to one of ordinary skill in the art at the time of the invention to form at least a portion of the axle of VanDenberg from a composite material for in order to reduce the weight of the axle (and therefore entire assembly) without sacrificing the strength, etc. characteristics of a solid steel axle.

Regarding the rejections under VanDenberg in view of Gimlett et al and Aton:

In response to applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977). In this case, the Applicant further argues that Aton does not show or describe the use of composite materials in the axle. It should be noted that the Gimlett et al was used to teach this limitation.

The Applicant argues that Aton does not specify that the sleeves 12 are metal. However, it would be obvious to one of ordinary skill in the art that the elements shown by Aton may be formed of metal.

The Applicant again argues that the references (VanDenberg, Gimlett et al, Aton) lack any teaching or suggestion for the limitations therein. Again, it is noted that the court decision in *KSR International Co. v. Teleflex Inc* (550 U.S. ___, 82 USPQ2d 1385 (April 30, 2007)) has foreclosed the need of a teaching or suggestion being present within the references.

The Applicant argues that "just because the examiner might be able to imagine a way in which the elements of the various reference could be rearranged to allegedly meet the limitations in the claim does not mean that the claim is therefore obvious over the references". The Applicant also argues that "the combination proposed by the examiner results from an attempted piecemeal assembly of the elements of the references, obviously using the applicant's claim as a 'recipe'". However, the court decision in *KSR International Co. v. Teleflex Inc* (550 U.S. ___, 82 USPQ2d 1385 (April 30, 2007)) states that one of the rationales for arriving at a conclusion of obviousness is "combining prior art elements according to known methods to yield predictable results". Therefore, the rejections set forth above are considered proper under 35 U.S.C. §103.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a

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reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jason R Bellinger

Primary Examiner

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21 September 2007

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